

REMARKS

This paper is submitted in response to the Office Action dated November 29, 2005, within the three-month period for response wherein claims 1-5, 7, 8, 12, 13 and 15 were examined. In response thereto, claims 1, 3, 4, 7 and 13 have been amended. Claims 5, 12 and 15 have been canceled. Claim 23 has been added. Claims 2 and 8 remain under active prosecution. Applicants respectfully assert that all amendments and new claims are supported by the original disclosure and do not introduce new matter. Moreover, applicants further respectfully assert that the amendments merely clarify the scope of those claims.

In the subject Office action, all pending claims 1-5, 7, 8, 12, 13 and 15 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. In particular, the examiner could not find any support in the specification or inference from the drawings to ascertain the exact definition or the scope of the limitation "coaxially". It was not clear to the examiner what the end effector is rotating coaxially with. In response thereto, Applicants have amended each occurrence of the term 'coaxially' from the pending claims. The amendments described in greater detail below clarify the relative motion between a frame and an end effector as well as a gear.

Turning to the substantive rejections in the subject Office action, claims 1-3, 5, 8, 12 and 15 were rejected under 35 U.S.C. 103(a) as being unpatentable over Green (US 5,312,023) in view of Bolanos et al (US 5,575,799). Claim 4 was rejected under 35 U.S.C. 103(a) as being unpatentable over Green and Bolanos in further view of McGarry et al (US 5,289,963). Applicants appreciate the indication by the Examiner that claims 7 and 13 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph.

Turning to independent claim 1, the claim as amended recites in part a shaft having a frame that defines a longitudinal axis. An end effector is pivotally attached to the frame to articulate in an arc about a pivot axis that is perpendicular to the longitudinal axis. A gear train articulation mechanism responds to a rotational motion from an articulation drive tube of the shaft that encompasses the frame to laterally articulate the end effector. In particular, a gear section is presented about at least a portion of a distal end of the articulation drive tube that engages a spur gear proximally attached to the end effector and rotating about the perpendicular

pivot axis. The clarification that the articulation is about a pivot axis that is perpendicular to the longitudinal axis is similar to features of dependent claim 4.

Claim 1 stands rejected as unpatentable over Green in view of Bolanos et al. Claim 4 was rejected as unpatentable over Green and Bolanos in further view of McGarry. The Examiner in effect relied upon McGarry to disclose an end effector pivoting about a perpendicular pivot axis to a longitudinal shaft. The Examiner further relied upon Bolanos et al. to disclose a spur gear attached to one side of an articulation joint engaging a gear segment on a rotating drive tube.

Applicants note that Bolanos et al. discloses an articulation joint wherein the end effector pivots about a *nonperpendicular* pivot axis with respect to a longitudinal axis of a shaft. Consequently, the combination of McGarry and Bolanos et al. fail to achieve the rotation-to-lateral-articulation motion as claimed in the amended claim 1. Moreover, a prima facie case has not been made that the cited references appreciated an advantage of this combination. For instance, lateral articulation in a plane may be more intuitive and may preferred in the close confines of endoscopic and laparoscopic surgery rather than the three-dimensional curving during articulation disclosed by Bolanos. In addition, an articulation drive tube that rotates about a frame provides design flexibility and performance.

Consequently, the cited references fail to render claim 1 as unpatentable. Reconsideration and allowance is respectfully requested, as well as for claims 2-4, 7, and 23 that depend therefrom.

With particular reference to claim 7, the claim has been previously indicated as being directed to allowable subject matter if the 35 U.S.C. 112, first and second paragraph rejections could be overcome. Applicants have amended the claim to depend directly from claim 1 as amended.

With particular reference to new claims 23, Applicants assert that claim 1 as amended is generic to the first articulation mechanism of FIGS. 10-11 (crown gear segment and straight teeth spur gear), the second version of FIGS. 15-16 (opposing snaggle tooth gear segments and a centered spur gear), and the third version of FIGS. 15-16 (bevel gear segment and beveled spur gear). The allowable subject matter of claims 7 and 13 provides a fourth version adding an

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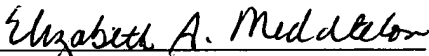
optional reversing gear between a second gear segment and recessed gear segment to the first version. New Claim 23 is directed to the subject matter of this second version with snaggle teeth.

Turning to claim 13, the claim has been amended in the same manner as claim 1 to overcome the rejection under 35 USC 112, first paragraph.

Conclusion


In light of the amendments and remarks made herein, it is respectfully submitted that the claims currently pending in the present application are in form for allowance. Accordingly, reconsideration of those claims, as amended herein, is earnestly solicited. Applicants encourage the Examiner to contact their representative, David Franklin at (513) 651-6856 or dfranklin@fbtlaw.com.

Although no fees are believed to be due, the Commissioner for Patents is hereby authorized to charge any deficiency or credit any overpayment of fees to Frost Brown Todd LLC Deposit Account No. 06-2226.

<p style="text-align: center;"><u>CERTIFICATE OF MAILING</u></p> <p>I hereby certify that a copy of this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to MS Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on</p> <p style="text-align: center;"><u>February 3, 2006</u></p> <p style="text-align: center;"> Elizabeth A. Middleton</p>

Respectfully submitted,

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